UNDERWATER BRIDGE INSPECTION REPORT

STRUCTURE NO. 73510

CSAH NO. 64

OVER THE

SAUK RIVER

DISTRICT 3 - STEARNS COUNTY

PREPARED FOR THE

MINNESOTA DEPARTMENT OF TRANSPORTATION

BY

COLLINS ENGINEERS, INC.

JOB NO. 3512 (CEI 88)

MINNESOTA DEPARTMENT OF TRANSPORTATION
UNDERWATER BRIDGE INSPECTION

REPORT SUMMARY:

The substructure units inspected at Bridge No. 73510, Piers 1 and 2, were generally in good condition. The steel H-piles, as noted in the previous inspection, exhibited light surface corrosion and pitting, but no significant section loss or defects of structural significance were observed. The channel bottom appeared stable with no evidence of significant scour or appreciable changes since the previous inspection.

INSPECTION FINDINGS:

(A) All steel H-piles of both piers exhibited light surface corrosion and pitting on 100 percent of the surface area from 1 foot above the waterline to 4 feet below the waterline, and on 25 to 50 percent of the surface area from 1 foot above the waterline to the pier cap. This corrosion was related to the coating failure on the steel H-piles in the affected locations.

RECOMMENDATIONS:

(A) Reinspect the submerged substructure units at the normal maximum recommended (NBIS) interval of five (5) years.

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

Daniel G. Stromberg

Date 6/30/2004 Registration No. 21491

Respectfully submitted,

COLLINS ENGINEERS, INC.

Daniel G. Stromberg
Registered Professional
Engineer, State of Minnesota

MINNESOTA DEPARTMENT OF TRANSPORTATION
UNDERWATER BRIDGE INSPECTION

1. BRIDGE DATA

Bridge Number: 73510

Feature Crossed: The Sauk River

Feature Carried: CSAH No. 64 (Third Avenue West)

Location: District 3 - Stearns County

Bridge Description: The superstructure consists of three spans of multiple steel beams supporting a reinforced concrete deck. The superstructure is supported by two reinforced concrete abutments founded on steel H-piles and two steel H-pile piers. The piers are numbered 1 and 2 starting from the south end of the bridge.

2. INSPECTION DATA

Professional Engineer/Team Leader: Shirley M. Walker, P.E.

Dive Team: Michelle D. Koerbel, Clayton G. Brookins

Date: September 28, 2002

Weather Conditions: Light Rain, "45EF

Underwater Visibility: "1.5 Feet

Waterway Velocity: Negligible/None

3. SUBSTRUCTURE INSPECTION DATA

Substructure Inspected: Piers 1 and 2.

General Shape: The piers consist of a single line of seven steel H-piles supporting a concrete pile cap.

Maximum Water Depth at Substructure Inspected: Approximately 8 Feet.

4. WATERLINE DATUM

Water Level Reference: The top of the pier cap on the west end of Pier 1.

Water Surface: The waterline was approximately 6.4 feet below reference.
Waterline Elevation = 1198.6.

5. NBIS CODING INFORMATION (Minnesota specific codes are used for 92B and 113)

Item 60: Substructure: Code 7

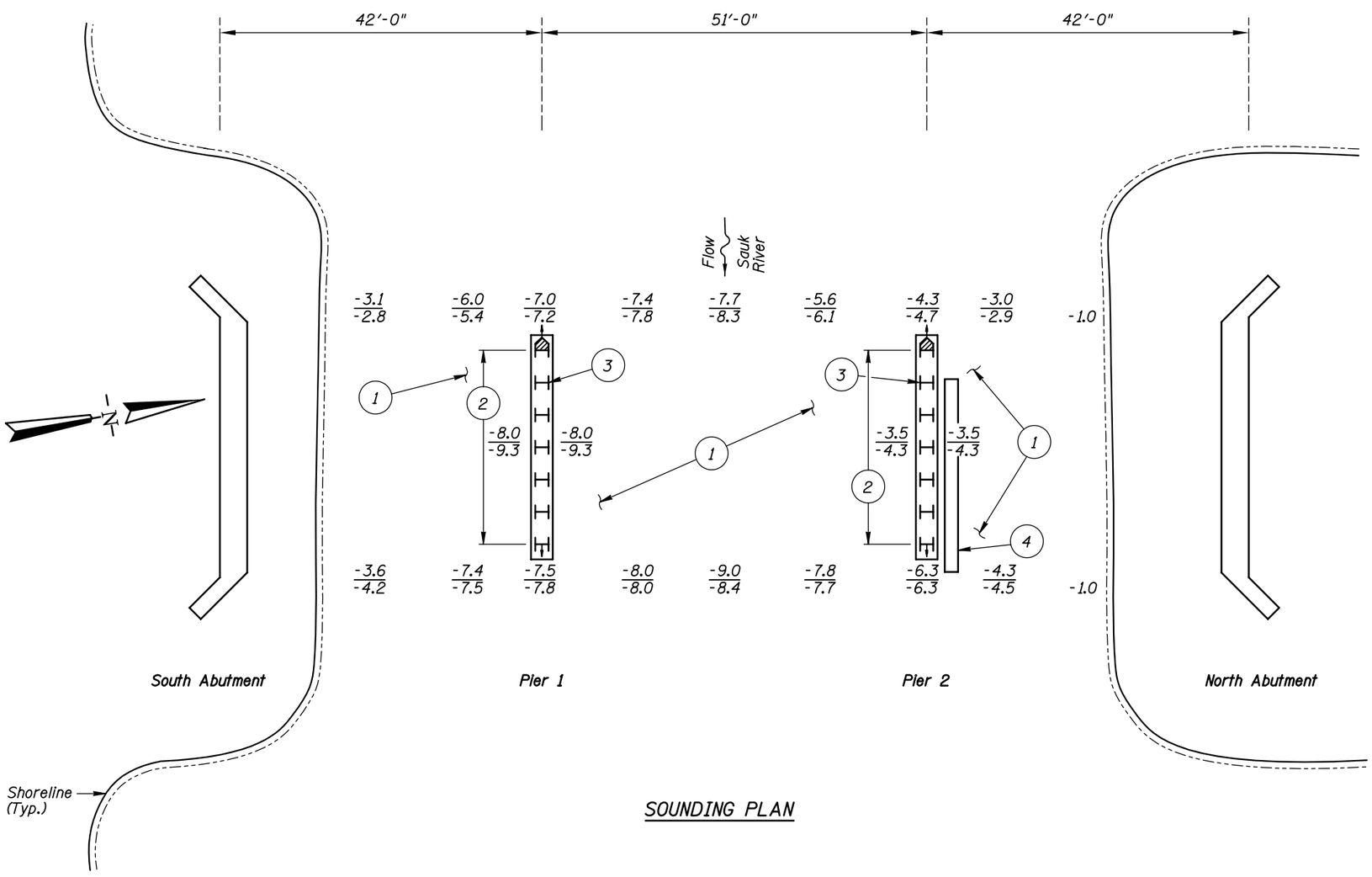
Item 61: Channel and Channel Protection: Code 8

Item 92B: Underwater Inspection: Code B/09/02

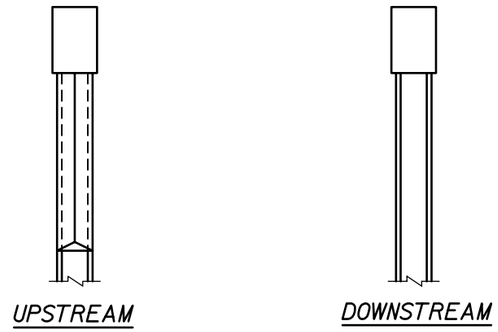
Item 113: Scour Critical Bridges: Code I/95

Bridge is scour critical because abutment or pier foundation is rated as unstable due to observed scour at bridge site.

_____Yes ___X__ No



SOUNDING PLAN



TYPICAL END VIEW OF PIERS

GENERAL NOTES:

1. Piers 1 and 2 were inspected underwater.
2. At the time of inspection on September 28, 2002, the waterline was located aproximately 6.4 feet below the top of the pier cap at the upstream end of Pier 1. This corresponds with a waterline elevation of 1198.6 based on the previous report dated September 10, 1997.
3. Soundings indicate the water depth at the time of inspection and are measured in feet.
4. Soundings were taken parallel to the bridge at 1/4 point intervals between the substructure units.

INSPECTION NOTES:

(1) The channel bottom material consisted of sand and 1 to 1.5 foot diameter rock with minimal probe rod penetration.

(2) Minor surface corrosion and light pitting in conjunction with coating failure/absence was observed on 100 percent of the surface area of the piles from 1 foot above to 4 feet below the waterline, and 25 to 50 percent of the surface area from 1 foot above the waterline to the pier cap. No appreciable section loss was associated with the deterioration.

(3) Light aquatic growth was observed on all piles below the waterline.

(4) A steel H-pile was observed on the channel bottom along the north face of pier 2.

Legend

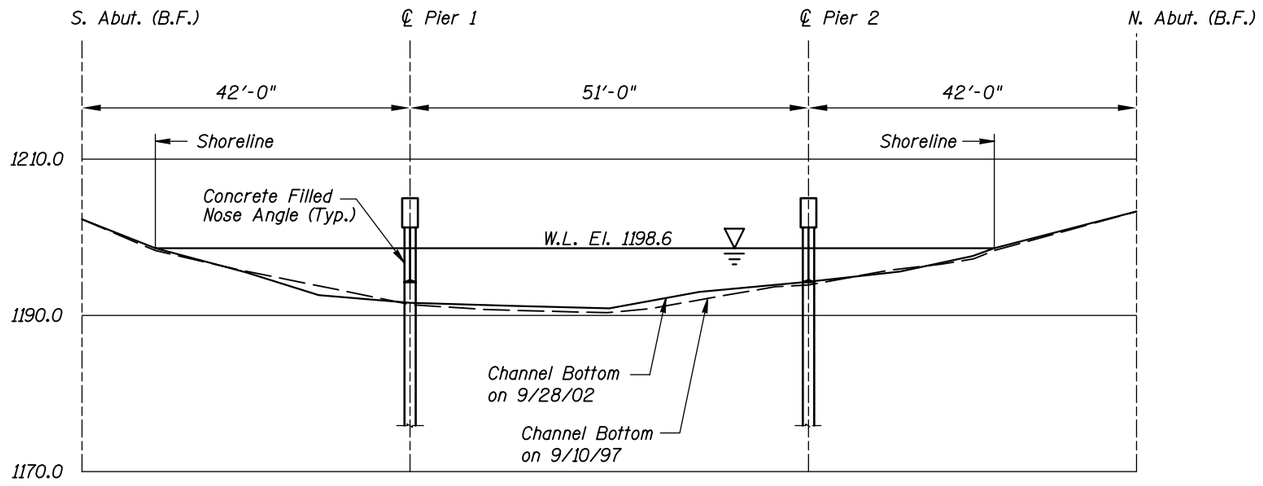
-2.0 / -5.2	Sounding Depth from Waterline (9/28/02) / (9/10/97)
H	Steel H-Pile
H	Battered Steel H-Pile
H	Battered Steel H-Pile with Concrete Filled Nose Angle

MINNESOTA
DEPARTMENT OF TRANSPORTATION
UNDERWATER BRIDGE INSPECTION

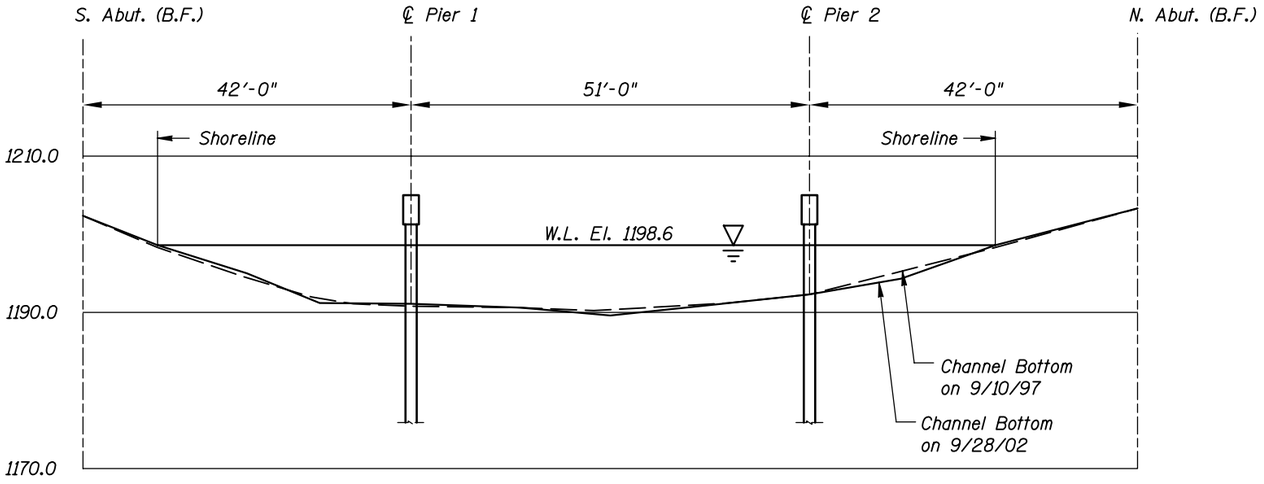
STRUCTURE NO. 73510
OVER THE SAUK RIVER
DISTRICT 3, STEARNS COUNTY

INSPECTION AND SOUNDING PLAN

Drawn By: PRH	COLLINS ENGINEERS, INC.	Date: SEPT. 2002
Checked By: MDK	300 W. WASHINGTON, STE. 600 CHICAGO, ILLINOIS 60606 (312) 704-9300	Scale: NTS
Code: 35120088		Figure No.: 1



UPSTREAM FASCIA PROFILE



DOWNSTREAM FASCIA PROFILE

Note:

Refer to Figure 1 for General Notes.

MINNESOTA
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UPSTREAM AND DOWNSTREAM FASCIA PROFILES

Drawn By: PRH	**COLLINS ENGINEERS, INC.**	Date: SEPT. 2002
Checked By: MDK	300 W. WASHINGTON, STE. 600 CHICAGO, ILLINOIS 60606 (312) 704-9300	Scale: 1"=20'
Code: 35120088		Figure No.: 2

Photograph 1. Overall View of the Structure, Looking Northeast.

Photograph 2. View of Pier 1, Looking Northeast.

Photograph 3. View of Pier 2, Looking Southeast.


Photograph 4. View of Typical Corrosion on Downstream Pile of Pier 2, Looking South.

MINNESOTA DEPARTMENT OF TRANSPORTATION
OFFICE OF BRIDGES AND STRUCTURES
DAILY DIVING REPORT

INSPECTORS: Collins Engineers, Inc. DATE: September 28, 2002

ON-SITE TEAM LEADER: Shirley M. Walker, P.E.

BRIDGE NO: 73510 WEATHER: Light Rain, "45EF

WATERWAY CROSSED: The Sauk River

DIVING OPERATION: X SCUBA SURFACE SUPPLIED AIR
OTHER

PERSONNEL: Michelle D. Koerbel, Clayton G. Brookins

EQUIPMENT: Scuba, Scraper, Lead Line, Camera, U/W Light, Probe Rod, Camera

TIME IN WATER: 9:00 a.m.

TIME OUT OF WATER: 9:20 a.m.

WATERWAY DATA: VELOCITY Negligible/None
VISIBILITY "1.5 feet
DEPTH 8 feet maximum at Pier 1.

ELEMENTS INSPECTED: Piers 1 and 2

REMARKS: The steel H-piles were generally in good condition with light pitting and surface corrosion due to coating failure on 100 percent of the surface area from 1 foot above to 4 feet below the waterline, and on 25 to 50 percent of the surface area from 1 foot above the waterline to the bottom of the pier cap. No appreciable section loss was associated with corrosion on the steel H-piles. A steel H-pile was observed on the channel bottom along the north face of Pier 2. The channel bottom appeared stable with no evidence of significant scour or appreciable changes since the last inspection.

FURTHER ACTION NEEDED: _____ YES ____X___ NO

Reinspect the submerged substructure units at the normal maximum recommended (NBIS) interval of five (5) years.

MINNESOTA DEPARTMENT OF TRANSPORTATION
OFFICE OF BRIDGES AND STRUCTURES

UNDERWATER INSPECTION CONDITION RATING FORM

BRIDGE NO. 73510
INSPECTORS Collins Engineers, Inc.
ON-SITE TEAM LEADER Shirley M. Walker, P.E.
WATERWAY CROSSED The Sauk River

INSPECTION DATE September 28, 2002

NOTE: USE ALL APPLICABLE CONDITION DEFINITIONS AS DEFINED IN THE MINNESOTA RECORDING AND CODING GUIDE INCLUDING GENERAL, SUBSTRUCTURE, CHANNEL AND PROTECTION, AND CULVERTS AND WALL DEFINITIONS TO COMPLETE THIS FORM.

CONDITION RATING

			SUBSTRUCTURE						CHANNEL					GENERAL					
UNIT REFERENCE NO.		MAXIMUM DEPTH OF WATER	PILING	COLUMNS, SHAFTS, OR FACES*	FOOTINGS	DISPLACEMENT	OTHER	OVERALL SUBSTRUCTURE CONDITION CODE*	SCOUR	EMBANKMENT EROSION	EMBANKMENT PROTECTION	OTHER (DEBRIS)	OVERALL CHANNEL & PROTECTION CONDITION	CONCRETE	STEEL	TIMBER	LOSS OF SECTION	PREVIOUS REPAIR OR MAINTENANCE	OTHER
	UNIT DESCRIPTION	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
	Pier 1	8.0’	7	N	N	9	N	7	8	N	N	N	8	N	7	N	N	8	N
	Pier 2	6.3’	7	N	N	9	N	7	8	N	N	7	7	N	7	N	N	8	N

*UNDERWATER PORTION ONLY

REMARKS: The steel H-piles were generally in good condition with light pitting and surface corrosion due to coating failure on 100 percent of the surface area from 1 foot above to 4 feet below the waterline, and on 25 to 50 percent of the surface area from 1 foot above the waterline to the bottom of the pier cap. No appreciable section loss was associated with corrosion on the steel H-piles. A steel H-pile was observed on the channel bottom along the north face of Pier 2. The channel bottom appeared stable with no evidence of significant scour or appreciable changes since the last inspection.

NOTES: ATTACH SKETCHES AS NEEDED, IDENTIFY REMARK BY REFERRING TO UNIT REFERENCE NO. AND REMARK NO.
USE GENERAL SECTION TO IDENTIFY OVERALL PRESENCE OF SPALLS, CRACKS, CORROSION, ETC.